

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method of detecting the presence of HPV in a sample comprising the following steps:

amplifying and labeling part of the E1 HPV gene, wherein amplification is performed using a primer pair selected from the group consisting of SEQ ID NO:1/SEQ ID NO:4, SEQ ID NO:2/SEQ ID NO:4, SEQ ID NO:3/SEQ ID NO:4, SEQ ID NO:5/SEQ ID NO:6, SEQ ID NO:7/SEQ ID NO:8, SEQ ID NO:9/SEQ ID NO:11, SEQ ID NO:9/SEQ ID NO:13, SEQ ID NO:10/SEQ ID NO:11, and SEQ ID NO:12/SEQ ID NO:11 to thereby form a labeled fragment;

hybridizing the labeled fragment to a solid support upon which a plurality of HPV E1-gene specific capture probes are immobilized, wherein the HPV E1-gene specific capture probes are selected from the group consisting of SEQ ID NO:24 to SEQ ID NO:59, and wherein the HPV E1-gene specific capture probes are optionally immobilized on the support as synthesized oligonucleotides or are optionally built on the support by light-directed oligonucleotide synthesis;

removing uncaptured labeled fragments; and

detecting the captured labeled fragment, wherein detection of the fragment indicates presence of HPV in the sample.
2. (canceled)
3. (previously presented) The method according to claim 1 wherein the step of amplification and labeling further comprises amplifying and labeling an HPV gene other than the HPV E1 gene.

4. (currently amended) A kit comprising:
- a device suitable for carrying out the detection method according to the present invention as claimed in any one of claim 1, ~~claim 2~~, or claim 3;
- a primer pair selected from the group consisting of SEQ ID NO:1/SEQ ID NO:4, SEQ ID NO:2/SEQ ID NO:4, SEQ ID NO:3/SEQ ID NO:4, SEQ ID NO:5/SEQ ID NO:6, SEQ ID NO:7/SEQ ID NO:8, SEQ ID NO:9/SEQ ID NO:11, SEQ ID NO:9/SEQ ID NO:13, SEQ ID NO:10/SEQ ID NO:11, and SEQ ID NO:12/SEQ ID NO:11;
- one or more solid supports containing HPV E1-gene specific capture probes selected from the group consisting of SEQ ID NO:24 to SEQ ID NO:59; and
- an optional reagent for signal enhancement.
- 5-9. (canceled)
10. (currently amended) The method of claim 1 wherein amplification is performed using at least two primer pairs thereby producing a second labeled fragment, and wherein the labeled fragment and the second labeled fragment belong to different ones of risk clusters ~~selected from the group consisting of low-risk HPV type, high-risk HPV type, and remaining HPV type.~~
11. (canceled)
12. (previously presented) The method of claim 2 wherein the plurality of HPV E1-gene specific capture probes includes at least three of SEQ ID NO:26, SEQ ID NO:29, SEQ ID NO:40, SEQ ID NO:41, SEQ ID NO:42, SEQ ID NO:45, SEQ ID NO:51, SEQ ID NO:54, and SEQ ID NO:55.
13. (previously presented) The method of claim 2 wherein the plurality of HPV E1-gene specific capture probes includes at least three of SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:38, SEQ ID NO:43, SEQ ID NO:44, and SEQ ID NO:49.

14. (previously presented) A method of detecting the presence of HPV in a sample comprising the following steps:
- amplifying and labeling part of the E1 HPV gene to thereby form a labeled fragment, wherein the amplification is performed such that the labeled fragment has a sequence capable of hybridizing with at least one of a plurality of HPV E1-gene specific capture probes;
- wherein the HPV E1-gene specific capture probes are selected from the group consisting of SEQ ID NO:24 to SEQ ID NO:59;
- hybridizing the labeled fragment to a solid support upon which the HPV E1-gene specific capture probe is immobilized;
- removing uncaptured labeled fragments; and
- detecting the captured labeled fragment, wherein detection of the fragment indicates presence of HPV in the sample.
15. (currently amended) The method of claim 14 wherein amplification is performed using at least two primer pairs selected from the group consisting of SEQ ID NO:1/SEQ ID NO:4, SEQ ID NO:2/SEQ ID NO:4, SEQ ID NO:3/SEQ ID NO:4, SEQ ID NO:5/SEQ ID NO:6, SEQ ID NO:7/SEQ ID NO:8, SEQ ID NO:9/SEQ ID NO:11, SEQ ID NO:9/SEQ ID NO:13, SEQ ID NO:10/SEQ ID NO:11, and SEQ ID NO:12/SEQ ID NO:11, thereby producing a second labeled fragment, and wherein the labeled fragment and the second labeled fragment belong to different ones of risk clusters ~~selected from the group consisting of low-risk HPV type, high-risk HPV type, and remaining HPV type.~~
16. (previously presented) The method of claim 14 wherein the solid support comprises at least three of SEQ ID NO:26, SEQ ID NO:29, SEQ ID NO:40, SEQ ID NO:41, SEQ ID NO:42, SEQ ID NO:45, SEQ ID NO:51, SEQ ID NO:54, and SEQ ID NO:55.

17. (previously presented) The method of claim 14 wherein the solid support comprises at least three of SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:38, SEQ ID NO:43, SEQ ID NO:44, and SEQ ID NO:49.